hn

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/676,727	09/29/2000	Francis X. Canning	CANNING.001A	2872

20995 7590 12/19/2005

KNOBBE MARTENS OLSON & BEAR LLP
2040 MAIN STREET
FOURTEENTH FLOOR
IRVINE, CA 92614

EXAMINER
DAY, HERNG DER

ART UNIT	PAPER NUMBER
2128	

DATE MAILED: 12/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/676,727	Applicant(s) CANNING, FRANCIS X.
	Examiner Herng-der Day	Art Unit 2128

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 August 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-51* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-51* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *8/16/05,10/14/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This communication is in response to Applicant's Amendment ("Amendment") and RCE to Office Action dated June 16, 2005, and September 1, 2005, mailed September 15, 2005.

1-1. Claims 1, 10, 23, 27, and 28 have been amended. Claims 34-51 have been added. Claims 1-51 are pending.

1-2. Claims 1-51 have been examined and rejected.

Specification

2. The objections to the specification have been withdrawn.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 47 and 49 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention.

4-1. The newly added claim 47 recites the limitation, "said portion of space at distances relatively shorter than a distance to other physical regions comprises a relatively more dense

portion of space" in lines 1-3 of the claim, which does not appear to have support in the original disclosure. For example, as described in the specification at page 16, lines 3-5, "A distance corresponding to the distance to other physical regions is usually far enough, and even shorter distance can be acceptable", however, "comprises a relatively more dense portion of space" at the shorter distance has not been disclosed.

4-2. The newly added claim 49 recites the limitation, "said portion of space comprising substantially all angular directions in said first plurality of angular directions comprises a relatively more dense portion of space" in lines 1-3 of the claim, which does not appear to have support in the original disclosure.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 38 and 39 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6-1. The term "substantially similar" in claims 38 and 39 is a relative term which renders the claim indefinite. The term "substantially similar" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. For the purpose of claim examination, the Examiner will interpret the "substantially similar" as described in claims 38 and 39 as "identical".

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-37 and 39-51 are rejected under 35 U.S.C. 102(b) as being anticipated by Canning et al., Rockwell Inst. Sci. Center, "Fast Direct Solution of Standard Moment-Method Matrices", IEEE Antennas and Propagation Magazine, June 1998, pages 15-26, hereafter referred to as Rockwell.

8-1. Regarding claim 1, Rockwell discloses a method of data compression, comprising:

partitioning a first set of basis functions into groups, each group corresponding to a region, each basis function corresponding to one unknown in a system of linear equations, each of said basis functions corresponding to an original source (basis functions, page 16, left column, paragraph 1);

selecting a plurality of spherical angles (angle, page 15, right column, the last paragraph);

using a computer system, calculating a far-field disturbance produced by each of said basis functions in a first group for each of said spherical angles to produce a matrix of transmitted disturbances (matrix A, page 15, right column, the last paragraph);

reducing a rank of said matrix of transmitted disturbances to yield a second set of basis functions, said second set of basis functions corresponding to composite sources, each of said composite sources comprising a linear combination of a number N of said original basis functions (the SVD of A, page 16, left column, the last paragraph);

partitioning a first set of weighting functions into groups, each group corresponding to one of said regions, each weighting function corresponding to a condition, each of said weighting functions corresponding to an original tester (testing functions, page 16, left column, paragraph 1);

using a computer system, calculating a far-field disturbance received by each of said testers in a first group for each of said spherical angles to produce a matrix of received disturbances (matrix A, page 15, right column, the last paragraph);

reducing a rank of said matrix of received disturbances to yield a second set of weighting functions, said second set of weighting functions corresponding to composite testers, each of said composite testers comprising a linear combination of a number M of said original testers (the SVD of A, page 16, left column, the last paragraph), wherein at least one of either M or N is greater than one (SVD is used to calculate the low-rank approximation to block A and from equation (3) at page 16, left column, each row or column of matrix D is a linear combination of corresponding rows or columns of matrix A); and

transforming said system of linear equations to use said composite sources and said composite testers (a fast sparse solution, page 16, left column, the last paragraph).

8-2. Regarding claim 2, Rockwell discloses a method of data compression, comprising:

partitioning a first set of basis functions into groups, each group corresponding to a region, each basis function corresponding to an unknown in a system of equations, each of said basis functions corresponding to an original source (basis functions, page 16, left column, paragraph 1);

selecting a first plurality of angular directions (angle, page 15, right column, the last paragraph);

using a computer system, calculating a disturbance produced by each of said basis functions in a first group for each of said angular directions to produce a matrix of disturbances (matrix A, page 15, right column, the last paragraph);

using said matrix of disturbances to compute a second set of basis functions, said second set of basis functions corresponding to composite sources, wherein at least one of said composite sources produces a relatively weak disturbance from a portion of space around said at least one composite source (the SVD of A, page 16, left column, the last paragraph);

partitioning a first set of weighting functions into groups, each group corresponding one of said regions, each weighting function corresponding to a condition, each of said weighting functions corresponding to an original tester (testing functions, page 16, left column, paragraph 1);

using a computer system, calculating a disturbance received by each of said testers in a second plurality of angular directions to produce a matrix of received disturbances (matrix A, page 15, right column, the last paragraph);

using said matrix of received disturbances to compute a second set of weighting functions, said second set of weighting functions corresponding to composite testers, wherein at least one of said composite testers weakly receives disturbances from a portion of space relative to said at least one composite tester (the SVD of A, page 16, left column, the last paragraph); and

transforming at least a portion of said system of equations to use one or more of said composite sources and one or more of said composite testers (a fast sparse solution, page 16, left column, the last paragraph).

8-3. Regarding claim 3, Rockwell further discloses said matrix of disturbances is a moment method matrix (MoM matrix, page 16, left column, paragraph 3).

8-4. Regarding claim 4, Rockwell further discloses said step of using said matrix of disturbances to compute a second set of basis functions comprises reducing a rank of said matrix of disturbances (the SVD of A, page 16, left column, the last paragraph).

8-5. Regarding claim 5, Rockwell further discloses said step of using said matrix of received disturbances to compute a second set of weighting functions comprises reducing a rank of said matrix of received disturbances (the SVD of A, page 16, left column, the last paragraph).

8-6. Regarding claim 6, Rockwell further discloses said disturbance is at least one of an electromagnetic field, a heat flux, an electric field, a magnetic field, a vector potential, a pressure, a sound wave, a particle flux, a weak nuclear force, a strong nuclear force, and a gravity force (electromagnetic interference, page 15, left column, the last paragraph).

8-7. Regarding claim 7, Rockwell further discloses said first plurality of directions is substantially the same as said second plurality of directions (angle, page 15, right column, the last paragraph).

8-8. Regarding claim 8, Rockwell further discloses said regions of space around said at least one composite source are far-field regions (these regions are not physically close to each other at any point, page 15, right column, the last second paragraph).

8-9. Regarding claim 9, Rockwell further discloses said at least a portion of a region around said at least one composite tester is a far-field region (these regions are not physically close to each other at any point, page 15, right column, the last second paragraph).

8-10. Regarding claim 10, Rockwell discloses a method of data compression, comprising:

calculating one composite source as a linear combination of more than one basis function, wherein at least one of said composite sources produces a relatively weak disturbance in a portion of space related to said at least one composite source (basis functions, page 16, left column, paragraph 1; SVD is used to calculate the low-rank approximation to block A and from equation (3) at page 16, left column, each row or column of matrix D is a linear combination of corresponding rows or columns of matrix A);

using a computer system, calculating one composite tester as a linear combination of more than one weighting function, wherein at least one of said composite testers is affected relatively weakly by disturbances propagating from a portion of space around said at least one composite tester (testing functions, page 16, left column, paragraph 1; SVD is used to calculate the low-rank approximation to block A and from equation (3) at page 16, left column, each row or column of matrix D is a linear combination of corresponding rows or columns of matrix A); and

transforming at least a portion of a first system of equations based on said basis functions and said weighting functions into a second system of equations based on said composite sources and said composite testers (a fast sparse solution, page 16, left column, the last paragraph).

8-11. Regarding claim 11, Rockwell further discloses said disturbance is at least one of, an electromagnetic field, a heat flux, an electric field, a magnetic field, vector potential, a pressure,

a sound wave, a particle flux, a weak nuclear force, strong nuclear force, and a gravity force (electromagnetic interference, page 15, left column, the last paragraph).

8-12. Regarding claims 12-16, Rockwell further discloses a technique applies not only to antenna and propagation problem, but also to all electromagnetic problems. It can be applied to matrices coming from nearly all integral-equation formulations and other linear wave phenomena (page 15, left column, the last paragraph through right column, paragraph 1).

8-13. Regarding claim 17, Rockwell further discloses each of said composite sources corresponds to a region (region, page 15, right column, the last second paragraph).

8-14. Regarding claim 18, Rockwell further discloses said second system of equations is described by a sparse block diagonal matrix (sparse representation, page 16, left column, paragraph 4).

8-15. Regarding claim 19, Rockwell further discloses comprising the step of reordering said sparse block diagonal matrix to shift relatively larger entries in said matrix towards a desired corner of said matrix (to arrange the singular values in decreasing order, page 17, left column, paragraph 1).

8-16. Regarding claim 20, Rockwell further discloses comprising the step of solving said second system of equations (a fast sparse solution, page 16, left column, the last paragraph).

8-17. Regarding claim 21, Rockwell further discloses comprising the step of solving said second system of equations to produce a first solution vector, said first solution vector expressed in terms of said composite testers (vector, page 18, left column, paragraph 1).

8-18. Regarding claim 22, Rockwell further discloses comprising the step of transforming said first solution vector into a second solution vector, said second solution vector expressed in terms of said weighting functions (orthogonalized version, page 18, left column, paragraph 2).

8-19. Regarding claim 23, Rockwell discloses a method, comprising:

calculating at least one composite source, said composite source representing a combination of N energy sources (basis functions, page 16, left column, paragraph 1);

using a computer system, calculating at least one composite tester (testing functions, page 16, left column, paragraph 1) as a combination of M testers, where at least one of either N or M is greater than one (SVD is used to calculate the low-rank approximation to block A and from equation (3) at page 16, left column, each row or column of matrix D is a linear combination of corresponding rows or columns of matrix A), said at least one composite tester testing an effect produced by said at least one composite source, said at least one composite source interacting relatively weakly with said at least one composite tester (the radiated field decays quickly for angles passing through successive sidelobes, page 18, right column, paragraph 1); and

transforming at least a portion of a first system of linear equations into a second system of linear equations based at least on said at least one composite source and said at least one composite tester (a fast sparse solution, page 16, left column, the last paragraph).

8-20. Regarding claim 24, Rockwell further discloses said at least one composite source represents a linear combination of one energy source such that said at least one composite source radiates relatively little energy into a portion of angular region disposed about said at least one source (the radiated field decays quickly for angles passing through successive sidelobes, page 18, right column, paragraph 1).

8-21. Regarding claim 25, Rockwell further discloses said at least one composite tester is affected relatively weakly by energy propagating from a portion of space around said at least one composite tester (the radiated field decays quickly for angles passing through successive sidelobes, page 18, right column, paragraph 1).

8-22. Regarding claim 26, Rockwell further discloses said second system of linear equations is represented by a block sparse matrix (a sparse yet accurate description of the matrix, page 19, right column, paragraph 2).

8-23. Regarding claim 27, Rockwell discloses an apparatus comprising:

means for calculating at least one composite source by combining N sources (basis functions, page 16, left column, paragraph 1);

means for calculating at least one composite tester by combining M testers (testing functions, page 16, left column, paragraph 1), where at least N or M is greater than one (SVD is used to calculate the low-rank approximation to block A and from equation (3) at page 16, left column, each row or column of matrix D is a linear combination of corresponding rows or columns of matrix A); and

means for transforming at least a portion of a first system of equations into a second system of equations based at least on said at least one composite source and said at least one composite tester (a fast sparse solution, page 16, left column, the last paragraph), said at least one composite tester testing an effect produced by said at least one composite source, said at least one composite source interacting relatively weakly with said at least one composite tester (the radiated field decays quickly for angles passing through successive sidelobes, page 18, right column, paragraph 1).

8-24. Regarding claim 28, Rockwell discloses a method of data compression, comprising:

calculating one or more composite sources as a combination of N basis function, wherein at least one of said composite sources produces a relatively weak product in a portion of space (basis functions, page 16, left column, paragraph 1);

using a computer system, calculating one composite tester as a combination of M weighting function, wherein at least one of said composite testers interacts relatively weakly with said at least one composite source (testing functions, page 16, left column, paragraph 1), and wherein either N or M is greater than one (SVD is used to calculate the low-rank approximation to block A and from equation (3) at page 16, left column, each row or column of matrix D is a linear combination of corresponding rows or columns of matrix A); and

transforming at least a portion of a first array of interaction data based on said basis functions and said weighting functions into a second array of interaction data based on said composite sources and said composite testers (a fast sparse solution, page 16, left column, the last paragraph).

8-25. Regarding claim 29, Rockwell further discloses said disturbance is at least one of, an electromagnetic field, a heat flux, an electric field, a magnetic field, vector potential, a pressure, a sound wave, a particle flux, a weak nuclear force, strong nuclear force, a gravity force, and an image element (electromagnetic interference, page 15, left column, the last paragraph).

8-26. Regarding claim 30, Rockwell further discloses each of said composite sources corresponds to a region (region, page 15, right column, the last second paragraph).

8-27. Regarding claim 31, Rockwell further discloses said second array of interaction data is described by a sparse block diagonal matrix (sparse representation, page 16, left column, paragraph 4).

8-28. Regarding claim 32, Rockwell further discloses comprising the step of using said second array of interaction data to compute a first solution vector, said first solution vector expressed in terms of said composite testers (vector, page 18, left column, paragraph 1).

8-29. Regarding claim 33, Rockwell further discloses comprising the step of transforming said first solution vector into a second solution vector, said second solution vector expressed in terms of said weighting functions (orthogonalized version, page 18, left column, paragraph 2).

8-30. Regarding claim 34, Rockwell further discloses said transforming said system of linear equations produces a substantially sparse system of linear equations.

8-31. Regarding claim 35, Rockwell further discloses N is greater than one and M is greater than one (SVD is used to calculate the low-rank approximation to block A and from equation (3) at page 16, left column, each row or column of matrix D is a linear combination of corresponding rows or columns of matrix A).

8-32. Regarding claim 36, Rockwell further discloses said transforming said system of linear equations produces a substantially sparse system of linear equations (a sparse representation of Z, page 16, left column, paragraph 4).

8-33. Regarding claim 37, Rockwell further discloses said matrix of transmitted disturbances is substantially different from said matrix of received disturbances (many fewer than m degree of freedom are needed to described this interaction. Of course, to a different observation region, different degree of freedom will be necessary, page 15, right column, the last paragraph).

8-34. Regarding claim 39, Rockwell further discloses said matrix of transmitted disturbances is a rectangular matrix having a different number of rows and columns, and wherein said composite sources are substantially similar to said composite testers (matrix A will be n by m, page 15, right column, the last paragraph).

8-35. Regarding claim 40, Rockwell further discloses said matrix of received disturbances comprises a moment-method matrix (MoM matrix, page 16, left column, paragraph 3).

8-36. Regarding claim 41, Rockwell further discloses said matrix of transmitted disturbances comprises a moment-method matrix (MoM matrix, page 16, left column, paragraph 3).

8-37. Regarding claim 42, Rockwell further discloses said matrix of received disturbances comprises a moment-method matrix (MoM matrix, page 16, left column, paragraph 3).

8-38. Regarding claim 43, Rockwell further discloses said transforming at least a portion of said system of equations to use one or more of said composite sources and one or more of said composite testers comprises transforming substantially all of said system of equations to use one or more of said composite sources and one or more of said composite testers (a fast sparse solution, page 16, left column, the last paragraph).

8-39. Regarding claim 44, Rockwell further discloses said transforming substantially all of said system of equations produces substantial sparseness (a sparse representation of Z, page 16, left column, paragraph 4).

8-40. Regarding claim 45, Rockwell further discloses said relatively weak disturbance from a portion of space around said at least one composite source comprises a relatively weak disturbance from a far-field portion of space (the radiated field decays quickly for angles passing through successive sidelobes, page 18, right column, paragraph 1).

8-41. Regarding claim 46, Rockwell further discloses said relatively weak disturbance from a portion of space around said at least one composite source comprises a portion of space at distances relatively shorter than a distance to other physical regions (the radiated field decays quickly for angles passing through successive sidelobes, page 18, right column, paragraph 1).

8-42. Regarding claim 47, Rockwell further discloses said portion of space at distances relatively shorter than a distance to other physical regions comprises a relatively more dense portion of space (many fewer than m degree of freedom are needed to described this interaction. Of course, to a different observation region, different degree of freedom will be necessary, page 15, right column, the last paragraph).

8-43. Regarding claim 48, Rockwell further discloses said relatively weak disturbance from a portion of space around said at least one composite source comprises a portion of space comprising substantially all angular directions in said first plurality of angular directions (m sources are used to describe radiation in all directions and for all distances, page 15, right column, the last paragraph).

8-44. Regarding claim 49, Rockwell further discloses said portion of space comprising substantially all angular directions in said first plurality of angular directions comprises a relatively more dense portion of space (many fewer than m degree of freedom are needed to described this interaction. Of course, to a different observation region, different degree of freedom will be necessary, page 15, right column, the last paragraph).

8-45. Regarding claim 50, Rockwell further discloses said transforming at least a portion of a first system of equations comprises transforming substantially all of a first system of equations based on said basis functions and said weighting functions into a second system of equations

based on said composite sources and said composite testers (the SVD of A, page 16, left column, the last paragraph).

8-46. Regarding claim 51, Rockwell further discloses said second system of equations is substantially sparse (if p<<n, this is a sparse representation of A, page 17, left column, paragraph 3).

9. Claims 10-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Nabors et al., "FastCap: A Multipole Accelerated 3-D Capacitance Extraction Program", IEEE Transactions on Computer-Aid Design, Vol. 10, No. 11, November 1991, pages 1447-1459 (IDS No. 12, filed October 14, 2005).

9-1. Regarding claim 10, Nabors et al. disclose a method of data compression, comprising:

calculating one composite source as a linear combination of more than one basis function, wherein at least one of said composite sources produces a relatively weak disturbance in a portion of space related to said at least one composite source (pages 1449-1450, Section IV.A. Multipole Expansions; Fig. 1);

using a computer system, calculating one composite tester as a linear combination of more than one weighting function, wherein at least one of said composite testers is affected relatively weakly by disturbances propagating from a portion of space around said at least one composite tester (pages 1450-1451, Section IV.B. Local Expansions; Fig. 2); and

transforming at least a portion of a first system of equations based on said basis functions and said weighting functions into a second system of equations based on said composite sources and said composite testers (pages 1451-1452, Section IV.C. The Multipole Algorithm).

9-2. Regarding claim 11, Nabors et al. further disclose said disturbance is at least one of, an electromagnetic field, a heat flux, an electric field, a magnetic field, vector potential, a pressure, a sound wave, a particle flux, a weak nuclear force, strong nuclear force, and a gravity force (potentials, page 1449, right column, paragraph 2).

Applicant's Arguments

10. Applicant argues the following:

10-1. Response to Rejection of Claims 1-33 Under 35 U.S.C. 102(b)

(1) "Rockwell teaches using a known prior-art technique of employing a single SVD rank reduction on a rectangular array of data to compress the array. It was known previously that composite sources and composite testers that are created by a single SVD applied to a given rectangular array of data can then be used to compress that same array of data" (page 14, paragraph 6, Amendment).

(2) "The present application teaches that one can use a first rank reduction on a first set of data to obtain composite sources, and a second rank reduction on a second (and different) set of data to obtain composite testers, and then use these separately-computed composite sources and composite testers together to compress a third set of data. The third set of data is not identical to at least one of the first and second sets of data" (page 14, paragraph 7, Amendment).

(3) Rockwell does not teach or suggest claims 1-51 (pages 15-20, Amendment).

Response to Arguments

11. Applicant's arguments have been fully considered.

11-1. Applicant's arguments (1)-(2) are not persuasive. Rockwell discloses, in section 2, Z is the MoM matrix and A is a sub-matrix of Z representing the interaction of two regions, which are not physically close to each other. The SVD of A is considered for calculating a low-rank approximation to each block A. Also, from equation (3) at page 16, left column, each row or column of matrix D is a linear combination of corresponding rows or columns of matrix A. Accordingly, it is very clear that each block A has its own corresponding data set that is not identical to the data set of MoM matrix Z.

11-2. Applicant's argument (3) is not persuasive. Claims 1-37 and 39-51 are rejected under 35 U.S.C. 102(b) as detailed in sections **8** to **9-2** above.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Herng-der Day whose telephone number is (571) 272-3777. The Examiner can normally be reached on 9:00 - 17:30.

Any inquiry of a general nature or relating to the status of this application should be directed to the TC 2100 Group receptionist: (571) 272-2100.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Kamini S. Shah can be reached on (571) 272-2279. The fax phone numbers for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Herng-der Day
December 12, 2005 H.D.

Thai Phan
Thai Phan
Patent Examiner
AU: 2128